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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,638	08/29/2003	Douglas M. Bancy	10030170-1	1820

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EXAMINER	
PAJOOHI, TARA S	

ART UNIT	PAPER NUMBER
2886	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/652,638	BANEY ET AL.	
	Examiner	Art Unit	
	Tara S. Pajoohi	2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *19-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/11/06 & 8/29/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Election/Restrictions

1. Applicant's election without traverse of claims 1-18 in the reply filed on June 29, 2007 is acknowledged.

Claim Objections

2. **Claim 18** is objected to because of the following informalities: Lines 5-6 of claim 18 is unclear. Examiner believes it should read, "said one or more polarization state rotators rotate the polarization state of said respective EM beams to cause said respective polarized beam splitters to reflect said respective EM beams". Appropriate correction is required.

3. **Claims 13-15** are objected to because they fail to further limit the claim or provide any further structural limitation. Therefore for examination purposes the limitation of "if said respective photodetector/wavemeter....said processor determines..." has not be given patentable weight.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1, 4-8 and 12-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Munro (U.S. Pub. # 2004/0135992)** in view of **Clark (U.S. Patent # 5,309,212).**

7. Considering **claim 1,** Munro discloses a method and system for determining the position of an object, comprising:

a. providing one or more EM beams (i.e., laser diode (110) emitting EM beams meets this limitation, para. 50)

b. retro-reflecting at least a portion of the respective dispersed beams off of an object (T) (i.e., light is back-reflected by the target T, para. 60 and 104); and

c. determining, in response to frequencies associated with said retro-reflected beams, respective angular positions of the object (i.e., determining the precise angular position of the target T based on the amplitude signal information about the reflectivity of the target T, para. 230).

Although Munro discloses that any type of focusing system can be used to direct the light from the laser diode to the target, Munro fails to specifically disclose dispersing the one or more EM beams into a scanning space by frequency via one or more dispersion devices.

In the same field of endeavor, Clark teaches (abstract and col. 3, lines 64-68) a scanning system that uses dual rotating prisms to transmit and collect a portion of the reflected light to the target.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to disperse the EM beams to the target as taught by Clark in the system of Munro, since Clark teaches that using a prism would provide for a scanning light collection system to obtain a large field and the configuration provides for a cost effective and less complex system (col. 6, lines 17-20 and 50-54).

8. Regarding **claims 7 and 16,** Munro discloses a position determination system comprising:

d. one or more EM sources that provide EM beams (i.e., laser diode (110) emitting EM beams meets this limitation, para. 50),

e. one or more receptors (154) that receive the respective retro-reflected beams and provide signals for determining the respective angular positions of the retro-reflective object (i.e., determining the precise angular position of the target T based on the amplitude signal information about the reflectivity of the target T, para. 223-230).

Although Munro discloses that any type of focusing system can be used to direct the light from the laser diode to the target, Munro fails to specifically disclose one or more beam dispersion devices that respectively disperse the one ore more EM beams into a scanning space by frequency, therein the system is configured to be response to the retro-reflective object positioned with the scanning space such that the retro-reflective object retro-reflects at least a portion of the respective dispersed beams.

In the same field of endeavor, Clark teaches (abstract and col. 3, lines 64-68) a scanning system that uses dual rotating prisms to transmit and collect a portion of the reflected light to the target.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to disperse the EM beams to the target as taught by Clark in the system of Munro, since Clark teaches that using a prism would provide for a scanning light collection system to obtain a large field and the configuration provides for a cost effective and less complex system (col. 6, lines 17-20 and 50-54).

9. As per **claim 8,** Munro discloses (para. 223) a processor (102) in signal communication with the one or more receptors (154).

10. As per **claims 4, 5 and 12,** Munro discloses the EM beams can be broadband or narrowband that are swept across a range of frequencies by using a broadband amplifier (para. 199) or narrowband filter (para.60).

11. Regarding **claim 6,** Munro discloses (para. 261) that the polarization of the light can be electronically controlled which meets the limitation of rotating the polarization states of the one or more EM beams and the retro-reflected beams.

12. Regarding **claim 13,** Munro discloses photo-detectors (114) associated with the one or more receptors (154) and both in communication with a processor (102) and therefore are capable of meeting the limitation that if the photo-detectors detect retro-reflected beams, the processor uses the known frequencies to determine respective angular positions.

13. As per **claim 14,** Munro discloses photo-detectors (114) associated with the one or more receptors (154) and both in communication with a processor (102) and therefore are capable of meeting the limitation

that if the photo-detectors detect retro-reflected beams, the processor uses the known frequencies to determine respective angular positions but fails to specifically disclose a wave meter associated with detecting retro-reflective beams.

However it would have been an obvious matter of design choice to use a wavemeter instead of a photodetector to detect the retro-reflected beams when using electromagnetic beams since a wavermeter is known in the art to be used to measure the distance between waves of EM waves.

14. Regarding **claim 15,** Munro discloses the EM beams can be broadband that are swept across a range of frequencies by using a broadband amplifier (para. 199), one or more receptors (154) associates with a processor (102) and therefore are capable of meeting the limitation that if the photo-detectors detect retro-reflected beams, the processor uses the known frequencies to determine respective angular positions but fails to specifically disclose a wave meter associated with detecting retro-reflective beams.

However it would have been an obvious matter of design choice to use a wavemeter instead of a photodetector to detect the retro-reflected beams when using electromagnetic beams since a wavermeter is known in the art to be used to measure the distance between waves of EM waves.

15. Considering **claim 17,** Munro fails to specifically disclose that the one or more partially reflective surfaces directs the EM beams from the one or more EM sources to the one or more beam dispersion devices and then through to the one or more receptors.

In the same field of endeavor, Clark teaches (col. 6, lines 50-55) sending the light beam through the prism to the target and then for it to return through that same prism to the one or more receptors.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to disperse the EM beams through the dispersion device to the target, back through the dispersion device to the receptors as taught by Clark in the system of Munro, since Clark teaches that using a prism would provide for a scanning light collection system to obtain a large field and the configuration provides for a cost effective and less complex system (col. 6, lines 17-20 and 50-54).

16. As per **claim 18,** Munro discloses (para. 105) the use of a beamsplitter in order to control the back-reflected light in an optical system. Munro also discloses (para. 261) that the polarization of the light can be electronically controlled which meets the limitation of rotating the polarization states of the one or more EM beams and the retro-reflected beams in order for the EM beam to pass the retro-reflected beam to the receptor.

Although the modified system of Munro fails to specifically disclose the polarization rotators are positioned between the retro-reflected object and the polarization beam-splitter.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to position the polarization rotator between the polarization beam-splitter and retro-reflected object since it was known in the art that this setup is required for the polarization rotator to control the polarization state of the EM beam.

17. **Claims 2, 3 and 9-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Munro (U.S. Pub. # 2004/0135992)** in view of **Clark (U.S. Patent # 5,309,212)** and further in view of Schultz (U.S. Patent # 6,442,416).

18. Considering **claims 2, 3 and 9,** the modified system of Munro discloses (col. 3, line 62 – col. 4, line 2 of Clark) the scanning system comprises a prism for alerting the direction of the optical measurement and moving the prism such that the signal is transmitted and reflected in different directions spanning a field of view.

The modified system of Munro fails to specifically disclose triangulating coordinates of the object using two or more (or three or more) respective angular positions.

Schultz discloses (abstract) detecting at least two points of an object to determine the position of the object as well as disclosing (col. 5, lines 55-61) triangulating spatial coordinates of the object with the three detectors (20, 22 and 24).

It would have been obvious to one having ordinary skill in the art to triangulate coordinates of an object using two or more (or three or more) angular positions as taught by Schultz in the modified system of

Munro since Schultz discloses that such a method provides for fast, accurate, safe and convenient mensuration of the position of the object (col. 3, lines 42-47).

19. As per **claim 10,** Munro discloses (para. 261) that the polarization of the light can be electronically controlled but fails to specifically disclose the elliptical EM beam.

However since Munro discloses that the polarization state of the light can be electronically controlled, it is well known and well within the level of ordinary skill in the art to adjust the polarization state of the EM beam to become an elliptical beam.

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

20. Considering **claim 11,** the modified system of Munro discloses (col. 3, line 62 – col. 4, line 2 of Clark) the scanning system comprises a prism for alerting the direction of the optical measurement and moving the prism such that the signal is transmitted and reflected in different directions spanning a field of view.

The modified system of Munro fails to specifically disclose triangulating coordinates of the object using two or more (or three or more) respective angular positions.

Schultz discloses (abstract) detecting at least two points of an object to determine the position of the object as well as disclosing (col. 5, lines 55-61) triangulating spatial coordinates of the object with the three detectors (20, 22 and 24).

It would have been obvious to one having ordinary skill in the art to triangulate coordinates of an object using two or more (or three or more) angular positions as taught by Schultz in the modified system of Munro since Schultz discloses that such a method provides for fast, accurate, safe and convenient mensuration of the position of the object (col. 3, lines 42-47).

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tara S. Pajoohi whose telephone number is 571-272-9785. The examiner can normally be reached on Monday - Thursday 7:30 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur R. Chowdhury can be reached on 571-272-2287. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tara S. Pajoohi
Patent Examiner

TSP

TARIFUR CHOWDHURY
SUPERVISORY PATENT EXAMINER